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Nitride-based insulating and magnetic thin films and multilayers

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STELLINGEN

Behorende bij het proefschrift

"NITRIDE—BASED INSULATING AND MAGNETIC
THIN FILMS AND MULTILAYERS"

1. The growth of clean and epitaxial $[\gamma'-\text{Fe}_4\text{N}/\text{Cu}_3\text{N}/\gamma'-\text{Fe}_4\text{N}]$ multilayers is not a trivial task despite the excellent lattice match and the metal (Cu, Fe)—N bonding.
(CHAPTER 6)
2. Mössbauer spectroscopy is an excellent tool for the identification of iron nitride phases. However, in some cases ambiguities may arise when a measured spectrum can be fitted equally well with two different combinations of sub-spectra.
(CHAPTER 3)
3. The magnetic properties of epitaxial $\gamma'-\text{Fe}_4\text{N}$ films were found to be fully consistent with the cubic symmetry, displaying easy [100] magnetization directions.
(CHAPTER 4)
4. If low amounts of Cu impurities are present in the Cu_3N semi-conducting matrix, the films still have the overall behavior of a semiconductor, but with a reduced optical band gap.
(CHAPTER 5)
5. The shortest path to success lies in a proper balance between selection and optimization.
6. Some of the cultural differences between people cannot be fully grasped even when specifically explained.
7. The meaning of "truth" depends on the person using the word.
8. If two persons speak the same language it does not mean they truly understand each other.
9. An intelligent person is not necessarily intellectual; or vice versa.
10. Improvement does not come chronologically.